

T-22-1 – “Managing For Sparrows in Louisiana’s Longleaf Pine Savannas”

Abstract: This grant included 3 planning projects. The unifying theme of the three projects was to determine the status and habitat associations of Bachman’s Sparrow and Henslow’s Sparrows. The objectives were to obtain information that can be used in the *Wildlife Action Plan* to address the needs of these species:

1. **Abstract:** “Effects of Fire on Habitat Associations, Abundance, and Survival of Wintering Henslow’s Sparrows (*Ammodramus henslowii*) in Southeastern Louisiana Longleaf Pine Savannas”.

The Henslow’s Sparrow (*Ammodramus henslowii*) is the fastest declining short-distance migrant and fastest declining grassland bird in North America. Declines in longleaf pine (*Pinus palustris*) savannas, its primary wintering habitat, have exceeded 97%. Other than basic habitat requirements, very little is known about its wintering ecology. I examined habitat associations of wintering Henslow’s Sparrows resulting from fire in longleaf pine savannas in southeastern Louisiana during two winters. Because it is important to understand the relative importance of habitat parameters, which include structure, species composition, and food availability, I measured these to determine their relative importance to Henslow’s Sparrow densities. I aged birds to understand the effects of fire on age-specific distributions and body condition, employed a mark-recapture analysis to determine over-winter survival, and determined over-wintering home ranges starting when Henslow’s Sparrows first arrived in October until they departed in April. Bird density was higher in savannas burned during the previous growing season (“burn-year”) than in savannas burned two growing seasons before (“non-burn-year”) in a two-year fire rotation scenario. Burning caused plant species compositions to shift from a *Rhychospora* spp. dominated habitat to an *Andropogon* / *Schizachyrium* spp. dominated habitat, however, total seed availability was not significantly different between burn-year and non-burn-year savannas. Because habitat-mediated age distributions, body condition, and home range size were also not significantly different between fire treatments, these findings are consistent with the idea that wintering Henslow’s Sparrows are generalist foragers. Bird density was best predicted by habitat structure, specifically reduced ground-level herbaceous vegetation and fewer shrubs. A higher survival probability was detected in burn-year savannas and may be responsible for habitat selection in this species. It is not clear how Henslow’s Sparrows locate apparently high quality habitat due to unpredictable changes from one year to the next. I therefore determined the extent of post-migration movements and between-year site fidelity. There was evidence of post-migration movements, while nine of 154 birds exhibited between-year site fidelity, suggesting that a variety of spatial use strategies occur in this population. Land managers can manipulate savanna structure through frequent growing-season prescribed fires, which are critical to Henslow’s Sparrow conservation.

(**Abstract copied verbatim from:** “Effects of Fire on Habitat Associations, Abundance, and Survival of Wintering Henslow’s Sparrows (*Ammodramus henslowii*) in Southeastern Louisiana Longleaf Pine Savannas”; Johnson, E.I.; 2006; M.S. Thesis; Louisiana State University, Baton Rouge, LA; 89 pp.)

2. *Abstract:* “Winter Diet, Seed Preferences and Foraging Behavior of Henslow’s Sparrows (*Ammodramus henslowii*) in Southeastern Louisiana.”

Henslow’s Sparrow (*Ammodramus henslowii*) is a grassland bird whose population is declining throughout its range, mainly due to habitat loss. The Longleaf Pine forest ecosystems in which Henslow’s Sparrows spend their winters are reduced to 5% of their former range. The winter ecology of Henslow’s Sparrow remains understudied, especially regarding important aspects of diet and foraging behavior. To determine winter diet, I collected fecal samples from Henslow’s Sparrows during banding operations in southeastern Louisiana pine savannas from October 2003-March 2004 and October 2004-April 2005. I then analyzed the samples for presence of seeds and arthropod parts, identified them to the lowest classification possible, and then used both multivariate and univariate techniques to look for variations in diet due to a savannas burn history, month of year and their interaction. I also conducted multiple-offer and simple-offer seed preference experiments on captive Henslow’s Sparrows in December 2004 and February 2005 to test a variety of seed types found at differing abundances within the study sites.

Commonly consumed seeds included *Scleria* spp., *Rhynchospora* spp., the category including *Dichanthelium* spp. and *Panicum* spp., and the combined category of *Aristida* spp., *Schizachyrium* spp. and *Andropogon* spp. Frequently consumed arthropods included Arachnids and insects from the orders Coleoptera, Hymenoptera, Hemiptera and Orthoptera. Diets varied significantly among months, most likely due to resource availability and timing of seed senescence. Results of seed preference experiments suggest that Henslow’s Sparrows preferred *Dichanthelium angustifolium*, *Muhlenbergia expansa* and *Eupatorium leucolepis* while they avoided *Schizachyrium scoparium*. *Ctenium aromaticum* and *Panicum anceps* appeared to be secondarily preferred food items.

(**Abstract copied verbatim from:** “Winter Diet, Seed Preferences and Foraging Behavior of Henslow’s Sparrows (*Ammodramus henslowii*) in Southeastern Louisiana.”; DiMiceli, J.K.; 2006; M.S. Thesis; Louisiana State University, Baton Rouge, LA; 118 pp.)

3. *Abstract:* “Bachman’s Sparrow Abundance in Managed Savannas in Southeastern Louisiana.”

Bachman’s Sparrow (*Aimophila aestivalis*) abundance was sampled using 10-minute point counts within longleaf pine stands of various age classes. Two to five points were spaced along transects in the sampling areas. If Bachman’s Sparrows were not detected during the point count, 2-minute playbacks of Bachman’s Sparrow song were used to elicit a response.

Bachman’s Sparrows were not detected at any sites located within pine flatwoods. Rolling hill habitats did support Bachman’s Sparrows. The highest abundance of Bachman’s Sparrow was observed on Sandy Hollow Wildlife Management Area.

(**Abstract by A. Ardoin {2007} from:** “Bachman’s Sparrow Abundance in Managed Savannas in Southeastern Louisiana”; Stouffer, P.C., J.K. DiMiceli, and E.I. Johnson; 2006; Final Report, T-22-1; Louisiana State University, Baton Rouge, LA; 4 pp.)

This grant was closed 31 December 2006. **For more information** about State Wildlife Grant T-22, or to obtain copies of interim or final reports, please contact the State Wildlife Grant Coordinator, LDWF Fur & Refuge Division.